US009824393B2

(12) **United States Patent**
Joseph

(10) **Patent No.:** **US 9,824,393 B2**
(45) **Date of Patent:** **Nov. 21, 2017**

(54) **METHODS AND SYSTEMS FOR MANAGING CONSUMER SAVINGS WITH CREDIT CARD TRANSACTIONS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 15 days.

(21) Appl. No.: **14/142,395**

(22) Filed: **Dec. 27, 2013**

(65) **Prior Publication Data**

US 2015/0186990 A1   Jul. 2, 2015

(51) **Int. Cl.**
G06Q 40/02 (2012.01)
G06Q 20/10 (2012.01)
G06Q 20/34 (2012.01)

(52) **U.S. Cl.**
CPC *G06Q 40/02* (2013.01); *G06Q 20/10* (2013.01); *G06Q 20/34* (2013.01)

(58) **Field of Classification Search**
USPC 705/16, 39, 40, 38, 35
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,787,404 A		7/1998	Fernandez-Holmann
6,070,153 A	*	5/2000	Simpson G06Q 20/10 235/379
6,105,865 A		8/2000	Hardesty
6,592,030 B1		7/2003	Hardesty
6,631,358 B1		10/2003	Ogilvie
7,171,370 B2	*	1/2007	Burke 705/16
7,480,634 B1		1/2009	Cornelius
7,516,883 B2		4/2009	Hardesty et al.
7,523,057 B1		4/2009	Cornelius
7,577,604 B2		8/2009	Ogilvie et al.
7,693,790 B2	*	4/2010	Lawlor et al. 705/40
7,725,391 B1		5/2010	Ley et al.
7,904,386 B2		3/2011	Kalra et al.
8,301,530 B2		10/2012	Carretta et al.
8,380,177 B2	*	2/2013	Laracey 455/414.1
8,417,635 B2		4/2013	Kalra et al.
2003/0078864 A1		4/2003	Hardesty et al.

(Continued)

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(57) **ABSTRACT**

In one aspect, a computer-implemented method for managing consumer savings initiated from a payment card transaction is included. The payment card transaction involves a cardholder and a payment card of the cardholder. The method uses a computer device in communication with an issuing bank. The computer device includes a memory. The method includes receiving, by the computer device, transaction data associated with the payment card transaction. The transaction data separately identifies a payment amount and a savings amount. The savings amount is an amount the cardholder selects to save. The method also includes identifying, by the computer device, a savings account number associated with the cardholder. The method further includes transmitting the savings amount and the savings account number to the issuing bank for recording as a savings accrual for the cardholder. The issuing bank is the issuer of the payment card.

21 Claims, 8 Drawing Sheets
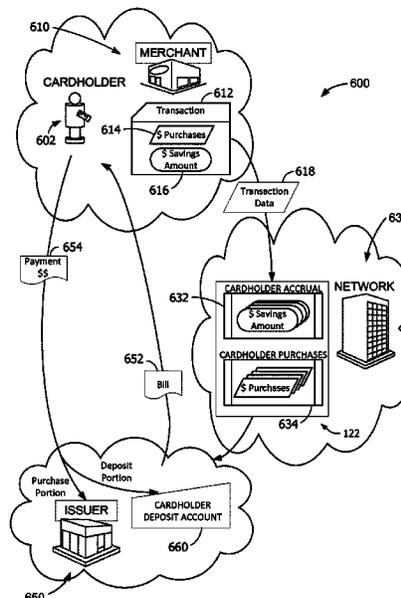
(56) **References Cited**

U.S. PATENT DOCUMENTS

2003/0105689 A1*	6/2003	Chandak	G06Q 30/02
			705/35
2005/0222951 A1*	10/2005	Sherman	G06Q 40/02
			705/40
2006/0273158 A1*	12/2006	Suzuki	H04W 4/02
			235/380
2007/0033134 A1	2/2007	Carretta et al.	
2007/0156554 A1*	7/2007	Nikoley et al.	705/35
2007/0288357 A1*	12/2007	Holman et al.	705/38
2008/0093442 A1*	4/2008	Hendricks	G06Q 10/04
			235/380
2008/0255951 A1*	10/2008	Miller et al.	705/14
2008/0270304 A1*	10/2008	Brown	705/44
2010/0094697 A1*	4/2010	Cavanaugh	G06Q 20/102
			705/14.17
2010/0121723 A1*	5/2010	Miller	G06Q 20/20
			705/16
2011/0125637 A1*	5/2011	Kalra	G06Q 20/102
			705/40
2011/0166994 A1*	7/2011	Ross	G06Q 20/102
			705/40
2011/0251892 A1*	10/2011	Laracey	705/14.51
2013/0030992 A1	1/2013	Carretta et al.	
2013/0036055 A1*	2/2013	Mears	705/44
2013/0124351 A1*	5/2013	Fisher	G06Q 20/20
			705/21
2013/0226805 A1*	8/2013	Griffin	G06Q 20/409
			705/44

* cited by examiner

FIG. 1

20

22
CARDHOLDER

TRANSACTION
BEGINS

24
MERCHANT

AUTHENTICATION

26
MERCHANT BANK

TRANSACTION
SUBMITTED

28
NETWORK

MERCHANT
PAYMENT

TRANSACTION
SUBMITTED

30　　21
ISSUER

MERCHANT
PAYMENT

32
CARDHOLDER
ACCOUNT

CARDHOLDER
PAYMENT

FIG. 2

100

FIG. 3

118

POS TERMINALS

112

144

154

144

154

Internet

156

148

ISP Internet Connection

Web
Server
126

Application
Server
124

Database
Server
116

134

150
—LAN/WAN—
136

Storage
Device

Mail
Server
132

User Auth.
Server
128

Directory
Server
130

3rd Parties
e.g., Acct Holders,
Customers, Auditors
146

138   140   142

114 -

122

FIG. 4

FIG. 5

610

MERCHANT

CARDHOLDER

612

602

Transaction

614

$ Purchases

$ Savings
Amount

616

618

Transaction
Data

600

630

654

Payment
$$

632

CARDHOLDER ACCRUAL

$ Savings
Amount

NETWORK

652

Bill

CARDHOLDER PURCHASES

$ Purchases

634

122

Purchase
Portion

Deposit
Portion

ISSUER

CARDHOLDER
DEPOSIT ACCOUNT

660

650

FIG. 6

700

710 — Receiving Payment Card Transaction including Payment Amount and Savings Amount

612

Transaction

614 — $ Purchases

$ Savings Amount

616

720 — Determining no Associated Account

730

740

Transmitting Account Creation Request

Generating Deposit Account Number

740 — Identifying a Savings Account Number

CARDHOLDER DEPOSIT ACCOUNT

660

760 — Accrue Savings Amount

632 — CARDHOLDER ACCRUAL

$ Savings Amount

$ Savings Amount

616

CARDHOLDER DEPOSIT ACCOUNT

660

ISSUER

770 — Transmitting the Savings Amount and the Savings Account Number to Issuing Bank
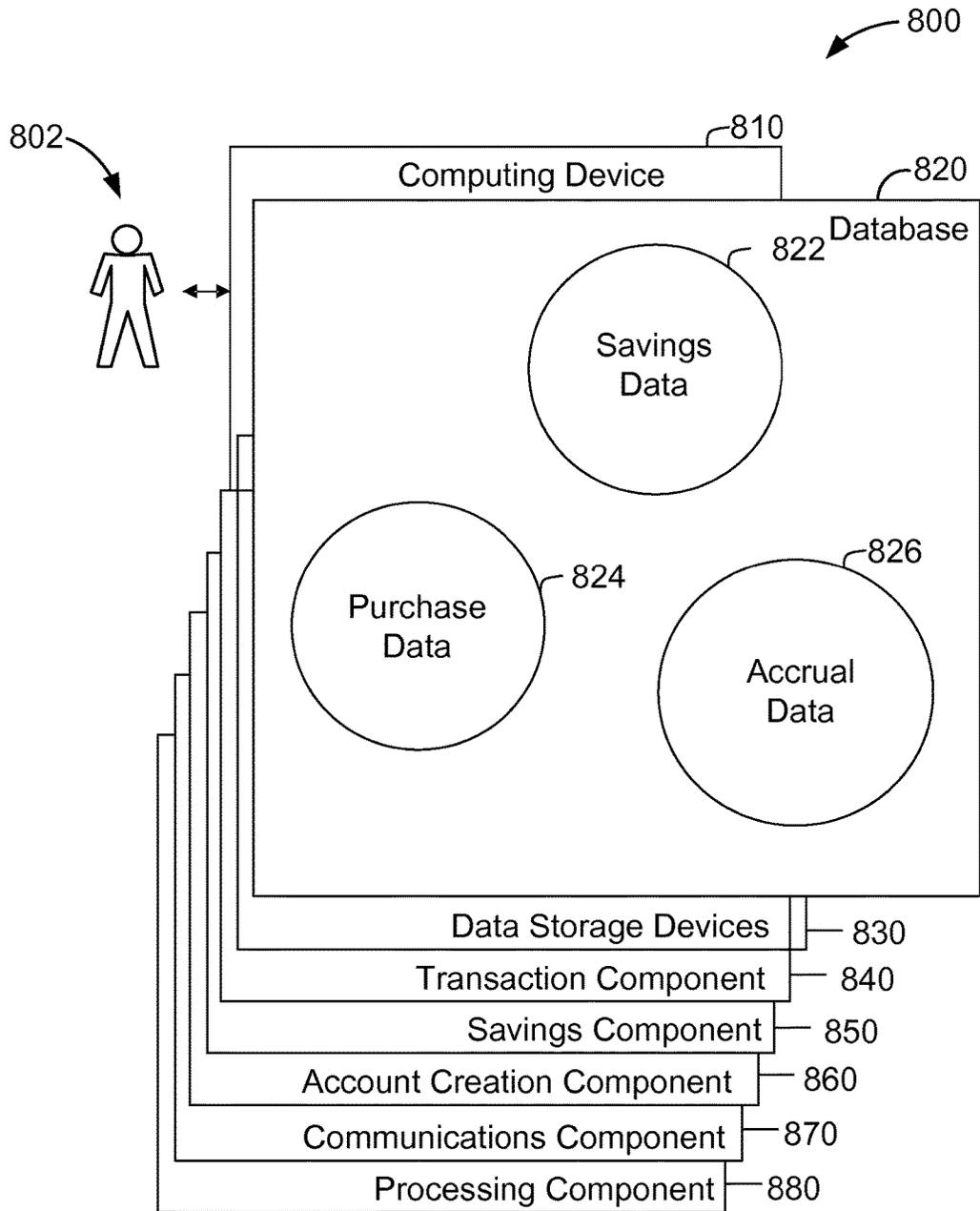
650

FIG. 7

FIG. 8

1

METHODS AND SYSTEMS FOR MANAGING CONSUMER SAVINGS WITH CREDIT CARD TRANSACTIONS

BACKGROUND OF THE DISCLOSURE

This disclosure relates generally to online payment transactions and, more specifically, to systems and methods for managing consumer savings during credit card transactions.

In some countries, such as the United States, many consumers struggle with saving portions of their income for a variety of reasons. Some consumers may save parts of their household earnings through payroll deductions, but most of these types of savings are positioned toward retirement rather than for nearer term needs. As such, typical households spend most or all of their income as they earn it, and may not have unrestrained access to cash for unexpected needs that arise.

In contrast, many consumers are in the habit of purchasing goods and services with payment cards such as credit cards. Payment cards have become a convenient means to avoid carrying cash, and the extension of credit by issuing banks gives consumers a mechanism to purchase goods and services they might not otherwise be able to immediately afford. As such, consumers are regularly conducting payment card transactions, but are not regularly saving portions of their income.

BRIEF DESCRIPTION OF THE DISCLOSURE

In one aspect, a computer-implemented method for managing consumer savings initiated from a payment card transaction is included. The payment card transaction involves a cardholder and a payment card of the cardholder. The method uses a computer device in communication with an issuing bank. The computer device includes a memory. The method includes receiving, by the computer device, transaction data associated with the payment card transaction. The transaction data separately identifies a payment amount and a savings amount. The savings amount is an amount the cardholder selects to save. The method also includes identifying, by the computer device, a savings account number associated with the cardholder. The method further includes transmitting the savings amount and the savings account number to the issuing bank for recording as a savings accrual for the cardholder. The issuing bank is the issuer of the payment card.

In another aspect, a computing device for managing consumer savings initiated from a payment card transaction is provided. The payment card transaction involves a cardholder and a payment card of the cardholder. The computing device includes a processor communicatively coupled to a memory. The computing device is in communication with an issuing bank. The computing device is programmed to receive transaction data associated with the payment card transaction. The transaction data separately identifies a payment amount and a savings amount. The savings amount is an amount the cardholder selects to save. The computing device is also programmed to identify a savings account number associated with the cardholder. The computing device is further programmed to transmit the savings amount and the savings account number to the issuing bank for recording as a savings accrual for the cardholder. The issuing bank is the issuer of the payment card.

In yet another aspect, at least one non-transitory computer-readable storage media having computer-executable instructions embodied thereon is provided. When executed

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by at least one processor, the computer-executable instructions cause the processor to receive transaction data associated with a payment card transaction for a payment card of a cardholder. The transaction data separately identifies a payment amount and a savings amount. The savings amount is an amount the cardholder selects to save. The computer-executable instructions also cause the processor to identify a savings account number associated with the cardholder. The computer-executable instructions further cause the processor to transmit the savings amount and the savings account number to the issuing bank for recording as a savings accrual for the cardholder. The issuing bank is the issuer of the payment card.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. **1-8** show example embodiments of the methods and systems described herein.

FIG. **1** is a schematic diagram illustrating an example multi-party payment card industry system for enabling ordinary payment-by-card transactions in which merchants and card issuers do not necessarily have a one-to-one relationship.

FIG. **2** is a simplified block diagram of an example savings management system including a plurality of computer devices in accordance with one example embodiment of the present disclosure.

FIG. **3** is an expanded block diagram of an example embodiment of a server architecture of the savings management system including the plurality of computer devices in accordance with one example embodiment of the present disclosure.

FIG. **4** illustrates an example configuration of a client system shown in FIGS. **2** and **3**.

FIG. **5** illustrates an example configuration of a server system shown in FIGS. **2** and **3**.

FIG. **6** is an example payment network environment including the savings management server shown in FIG. **2** in which a consumer is prompted and elects to make savings contributions during a payment card transaction.

FIG. **7** is an example method for managing consumer savings during payment card transactions in the payment network environment shown in FIG. **6**.

FIG. **8** shows an example configuration of a database within a computing device, along with other related computing components, that may be used to manage consumer savings during payment card transactions.

DETAILED DESCRIPTION OF THE DISCLOSURE

Systems and methods are described herein for facilitating and promoting household savings during payment card transactions, such as during credit card purchases over an interchange network. During a typical payment card transaction, a cardholder (i.e., a consumer) identifies goods or services to purchase, and a merchant tabulates the purchases into a total purchase amount (i.e., an amount for which the cardholder is going to use his or her payment card to complete the purchase). In one embodiment of the present disclosure, a savings management system additionally prompts a cardholder to engage in a voluntary savings program at the time of the transaction, such as at a point-of-sale device. More specifically, the cardholder is prompted to select a savings amount to save during the payment transaction (i.e., an additional amount over and above the purchase amount). If the cardholder opts out during that

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transaction, then the transaction is completed with just the purchase amount. If, however, the cardholder does elect a savings amount, the system processes the transaction with both the payment amount and the savings amount.

In the example embodiment, the savings management system receives a purchase amount (i.e., the amount that is to be paid to the merchant) and a separate savings amount (i.e., the amount that is to be saved by the cardholder) with the transaction. The system treats the savings amount apart from the purchase amount by accruing the savings amount on behalf of the cardholder. During a normal billing cycle, the cardholder would be presented with a bill for purchases. For example, presume the cardholder had $800 worth of goods and services purchased during the past month, and had entered $100 worth of total savings amounts during those transactions. The cardholder's bill will include the cardholder's itemized purchase amounts as normal (i.e., a total purchase amount due of $800), but will also include a separate entry for any savings amounts that he or she had entered during the transactions (i.e., a total savings amount due of $100). When the cardholder pays the total amount of $900 in response to the bill, $800 will be used to satisfy his total purchase bill, and the other $100 will deposited into a savings account on behalf of the cardholder. Effectively, the system becomes a conduit for the cardholder to deposit money into their own savings account by enabling the cardholder to specify a savings amount during payment card transactions, billing the cardholder for that amount, then depositing the cardholder's savings dollars upon receipt (i.e., when the cardholder pays their bill).

To facilitate the savings process as described herein, the cardholder's payment card may be associated with a pre-existing bank account, or the system may establish a bank account on behalf of the cardholder. For example, the cardholder may be engaged to register for this savings service through their issuing bank (e.g., the issuer of their credit card). If the cardholder has an existing account with the issuer, the system and/or the issuer may associate the payment card with the account such that any savings amounts paid on the payment card will be deposited into the existing account. In some embodiments, the system may automatically generate a savings account (e.g., if no account has yet been associated with the payment card) on behalf of the cardholder, as well as automatically associate the cardholder's payment card with that savings account.

A technical effect of the systems and processes described herein include at least one of: (a) receiving, by the computer device, transaction data associated with the payment card transaction, wherein the transaction data separately identifies a payment amount and a savings amount, the savings amount being an amount the cardholder desires to save; (b) identifying, by the computer device, a savings account number associated with the cardholder; (c) transmitting the savings amount and the savings account number to the issuing bank for recording as a savings accrual for the cardholder, the issuing bank is the issuer of the payment card; (d) receiving the transaction data from a source device that includes at least one of a point of interaction computing device and a merchant bank computing device, wherein the source device prompts the cardholder to input the savings amount; (e) recording, in the memory, the savings amount as a savings accrual for the cardholder; (f) generating a total savings amount from a plurality of savings amounts; (g) transmitting the total savings amount to the issuing bank; (h) receiving the transaction data from a merchant bank, wherein the transaction data further includes a first code associated with the payment amount and a second code

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associated with the savings amount, wherein the first code is different than the second code; (i) determining that the payment card does not have an associated savings account at the issuing bank; (j) transmitting an account creation request to the issuing bank on behalf of the cardholder, the account creation request results in the creation of the associated savings account at the issuing bank; (k) generating the savings account number by one of selecting an account number from a pre-defined pool of account numbers and generating an account number using a pre-defined format; and (l) receiving a savings amount selected by the cardholder at a point-of-sale device.

As used herein, the term "database" may refer to either a body of data, a relational database management system (RDBMS), or both. As used herein, a database may include any collection of data including hierarchical databases, relational databases, flat file databases, object-relational databases, object oriented databases, and any other structured collection of records or data that is stored in a computer system. The above examples are example only, and thus are not intended to limit in any way the definition and/or meaning of the term database. Examples of RDBMS's include, but are not limited to including, Oracle® Database, MySQL, IBM® DB2, Microsoft® SQL Server, Sybase®, and PostgreSQL. However, any database may be used that enables the systems and methods described herein. (Oracle is a registered trademark of Oracle Corporation, Redwood Shores, Calif.; IBM is a registered trademark of International Business Machines Corporation, Armonk, N.Y.; Microsoft is a registered trademark of Microsoft Corporation, Redmond, Wash.; and Sybase is a registered trademark of Sybase, Dublin, Calif.)

As used herein, a processor may include any programmable system including systems using micro-controllers, reduced instruction set circuits (RISC), application specific integrated circuits (ASICs), logic circuits, and any other circuit or processor capable of executing the functions described herein. The above examples are example only, and are thus not intended to limit in any way the definition and/or meaning of the term "processor."

As used herein, the terms "software" and "firmware" are interchangeable, and include any computer program stored in memory for execution by a processor, including RAM memory, ROM memory, EPROM memory, EEPROM memory, and non-volatile RAM (NVRAM) memory. The above memory types are example only, and are thus not limiting as to the types of memory usable for storage of a computer program.

In one embodiment, a computer program is provided, and the program is embodied on a computer readable medium. In an example embodiment, the system is executed on a single computer system, without requiring a connection to a sever computer. In a further embodiment, the system is being run in a Windows® environment (Windows is a registered trademark of Microsoft Corporation, Redmond, Wash.). In yet another embodiment, the system is run on a mainframe environment and a UNIX® server environment (UNIX is a registered trademark of X/Open Company Limited located in Reading, Berkshire, United Kingdom). The application is flexible and designed to run in various different environments without compromising any major functionality. In some embodiments, the system includes multiple components distributed among a plurality of computing devices. One or more components may be in the form of computer-executable instructions embodied in a computer-readable medium. The systems and processes are not limited to the specific embodiments described herein. In

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addition, components of each system and each process can be practiced independent and separate from other components and processes described herein. Each component and process can also be used in combination with other assembly packages and processes.

As used herein, the terms "transaction card," "financial transaction card," and "payment card" refer to any suitable transaction card, such as a credit card, a debit card, a prepaid card, a charge card, a membership card, a promotional card, a frequent flyer card, an identification card, a prepaid card, a gift card, and/or any other device that may hold payment account information, such as mobile phones, Smartphones, personal digital assistants (PDAs), key fobs, and/or computers. Each type of transactions card can be used as a method of payment for performing a transaction. As used herein, the term "payment account" is used generally to refer to the underlying account with the transaction card. In addition, cardholder card account behavior can include but is not limited to purchases, management activities (e.g., balance checking), bill payments, achievement of targets (meeting account balance goals, paying bills on time), and/or product registrations (e.g., mobile application downloads).

As used herein, the term "accrue", as it is applied to savings amounts, is used generally to refer to an accumulation of one or more amounts, and does not necessarily imply the existence of a legally enforceable obligation or claim. In other words, the savings amounts that are said to accrue in the present disclosure are not necessarily legal obligations to pay. In one example embodiment, a cardholder is under no obligation to pay the savings amounts that are accrued on their behalf.

The following detailed description illustrates embodiments of the disclosure by way of example and not by way of limitation. It is contemplated that the disclosure has general application to processing financial transaction data by a third party in industrial, commercial, and residential applications.

As used herein, an element or step recited in the singular and proceeded with the word "a" or "an" should be understood as not excluding plural elements or steps, unless such exclusion is explicitly recited. Furthermore, references to "example embodiment" or "one embodiment" of the present disclosure are not intended to be interpreted as excluding the existence of additional embodiments that also incorporate the recited features.

FIG. 1 is a schematic diagram illustrating an example multi-party transaction card industry system 20 for enabling cardholder savings as a part of the payment card purchase process. Embodiments described herein may relate to a transaction card system, such as a credit card payment system using the MasterCard® interchange network. The MasterCard® interchange network is a set of proprietary communications standards promulgated by MasterCard International Incorporated® for the exchange of financial transaction data and the settlement of funds between financial institutions that are members of MasterCard International Incorporated®. (MasterCard is a registered trademark of MasterCard International Incorporated located in Purchase, N.Y.).

In a typical transaction card system, a financial institution called the "issuer" issues a transaction card, such as a credit card, to a consumer or cardholder 22, who uses the transaction card to tender payment for a purchase from a merchant 24. To accept payment with the transaction card, merchant 24 must normally establish an account with a financial institution that is part of the financial payment system. This financial institution is usually called the "merchant bank," the "acquiring bank," or the "acquirer." When cardholder 22 tenders payment for a purchase with a transaction card, merchant 24 requests authorization from a merchant bank 26 for the amount of the purchase. The request may be performed over the telephone, but is usually performed through the use of a point-of-sale terminal, which reads cardholder's 22 account information from a magnetic stripe, a chip, or embossed characters on the transaction card and communicates electronically with the transaction processing computers of merchant bank 26. Alternatively, merchant bank 26 may authorize a third party to perform transaction processing on its behalf. In this case, the point-of-sale terminal will be configured to communicate with the third party. Such a third party is usually called a "merchant processor," an "acquiring processor," or a "third party processor."

Using an interchange network 28, computers of merchant bank 26 or merchant processor will communicate with computers of an issuer bank 30 to determine whether cardholder's 22 account 32 is in good standing and whether the purchase is covered by cardholder's 22 available credit line. Based on these determinations, the request for authorization will be declined or accepted. If the request is accepted, an authorization code is issued to merchant 24.

When a request for authorization is accepted, the available credit line of cardholder's 22 account 32 is decreased. Normally, a charge for a payment card transaction is not posted immediately to cardholder's 22 account 32 because bankcard associations, such as MasterCard International Incorporated®, have promulgated rules that do not allow merchant 24 to charge, or "capture," a transaction until goods are shipped or services are delivered. However, with respect to at least some debit card transactions, a charge may be posted at the time of the transaction. When merchant 24 ships or delivers the goods or services, merchant 24 captures the transaction by, for example, appropriate data entry procedures on the point-of-sale terminal. This may include bundling of approved transactions daily for standard retail purchases. If cardholder 22 cancels a transaction before it is captured, a "void" is generated. If cardholder 22 returns goods after the transaction has been captured, a "credit" is generated. Interchange network 28 and/or issuer bank 30 stores the transaction card information, such as a type of merchant, amount of purchase, date of purchase, in a database 120 (shown in FIG. 2).

After a purchase has been made, a clearing process occurs to transfer additional transaction data related to the purchase among the parties to the transaction, such as merchant bank 26, interchange network 28, and issuer bank 30. More specifically, during and/or after the clearing process, additional data, such as a time of purchase, a merchant name, a type of merchant, purchase information, cardholder account information, a type of transaction, savings information, itinerary information, information regarding the purchased item and/or service, and/or other suitable information, is associated with a transaction and transmitted between parties to the transaction as transaction data, and may be stored by any of the parties to the transaction.

After a transaction is authorized and cleared, the transaction is settled among merchant 24, merchant bank 26, and issuer bank 30. Settlement refers to the transfer of financial data or funds among merchant's 24 account, merchant bank 26, and issuer bank 30 related to the transaction. Usually, transactions are captured and accumulated into a "batch," which is settled as a group. More specifically, a transaction is typically settled between issuer bank 30 and interchange

network **28**, and then between interchange network **28** and merchant bank **26**, and then between merchant bank **26** and merchant **24**.

FIG. **2** is a simplified block diagram of an example savings management system **100** including a plurality of computer devices connected in communication in accordance with the present disclosure. In the example embodiment, system **100** may be used for managing cardholder savings during payment card transactions in the interchange environment shown in FIG. **1**.

More specifically, in the example embodiment, system **100** includes a server system **112** in communication with a point-of-sale (POS) terminal **118** at a merchant location, such as merchant **24** (shown in FIG. **1**). The POS terminal **118** may be used to enter savings amounts by cardholder **22** (shown in FIG. **1**) during payment card transactions, as described herein.

In the example embodiment, server system **112** is also in communication with a plurality of client sub-systems, also referred to as client systems **114**. In one embodiment, client systems **114** are computers including a web browser, such that server system **112** is accessible to client systems **114** using the Internet. Client systems **114** are interconnected to the Internet through many interfaces including a network **115**, such as a local area network (LAN) or a wide area network (WAN), dial-in-connections, cable modems, special high-speed Integrated Services Digital Network (ISDN) lines, and RDT networks. Client systems **114** could be any device capable of interconnecting to the Internet including a web-based phone, PDA, or other web-based connectable equipment.

In the example embodiment, system **100** also includes POS terminals **118**, which may be connected to client systems **114** and may be connected to server system **112**. POS terminals **118** are interconnected to the Internet through many interfaces including a network, such as a local area network (LAN) or a wide area network (WAN), dial-in-connections, cable modems, wireless modems, and special high-speed ISDN lines. POS terminals **118** could be any device capable of interconnecting to the Internet and including an input device capable of reading information from a cardholder's financial transaction card. In some embodiments, POS terminal **118** may be a cardholder's personal computer, such as when conducting an online purchase through the Internet. As used herein, the terms POS device, POS terminal, and point of interaction device are used broadly, generally, and interchangeably to refer to any device in which a cardholder interacts with a merchant to complete a payment card transaction.

A database server **116** is connected to database **120**, which contains information on a variety of matters, as described below in greater detail. In one embodiment, centralized database **120** is stored on server system **112** and can be accessed by potential users at one of client systems **114** by logging onto server system **112** through one of client systems **114**. In an alternative embodiment, database **120** is stored remotely from server system **112** and may be non-centralized.

Database **120** may include a single database having separated sections or partitions or may include multiple databases, each being separate from each other. Database **120** may store transaction data generated as part of sales activities and savings activities conducted over the processing network including data relating to merchants, account holders or customers, issuers, acquirers, savings amounts, savings account information, and/or purchases made. Database **120** may also store account data including at least one of a cardholder name, a cardholder address, an account number, and other account identifier. Database **120** may also store merchant data including a merchant identifier that identifies each merchant registered to use the network, and instructions for settling transactions including merchant bank account information. Database **120** may also store purchase data associated with items being purchased by a cardholder from a merchant, and authorization request data. Database **120** may also store savings account information associated with issuing banks and cardholders.

In the example embodiment, one of client systems **114** may be associated with acquirer bank **26** (shown in FIG. **1**) while another one of client systems **114** may be associated with issuer bank **30** (shown in FIG. **1**). POS terminal **118** may be associated with a participating merchant **24** (shown in FIG. **1**) or may be a computer system and/or mobile system used by a cardholder making an on-line purchase or payment. Server system **112** may be associated with interchange network **28**. In the exemplary embodiment, server system **112** is associated with a network interchange, such as interchange network **28**, and may be referred to as an interchange computer system. Server system **112** may be used for processing transaction data. In addition, client systems **114** and/or POS terminal **118** may include a computer system associated with at least one of an online bank, a bill payment outsourcer, an acquirer bank, an acquirer processor, an issuer bank associated with a transaction card, an issuer processor, a remote payment system, a token requestor, a token provider, and/or a biller.

FIG. **3** is an expanded block diagram of an exemplary embodiment of a server architecture of a savings management system **122** including other computer devices in accordance with one embodiment of the present disclosure. Components in system **122**, identical to components of system **100** (shown in FIG. **2**), are identified in FIG. **3** using the same reference numerals as used in FIG. **2**. Savings management system **122** includes server system **112**, client systems **114**, and POS terminals **118**. Server system **112** further includes database server **116**, a transaction server **124**, a web server **126**, a fax server **128**, a directory server **130**, and a mail server **132**. A storage device **134** is coupled to database server **116** and directory server **130**. Servers **116**, **124**, **126**, **128**, **130**, and **132** are coupled in a local area network (LAN) **136**. In addition, an issuer bank workstation **138**, an acquirer bank workstation **140**, and a third party processor workstation **142** may be coupled to LAN **136**. In the example embodiment, issuer bank workstation **138**, acquirer bank workstation **140**, and third party processor workstation **142** are coupled to LAN **136** using network connection **115**. Workstations **138**, **140**, and **142** are coupled to LAN **136** using an Internet link or are connected through an Intranet.

Each workstation **138**, **140**, and **142** is a personal computer having a web browser. Although the functions performed at the workstations typically are illustrated as being performed at respective workstations **138**, **140**, and **142**, such functions can be performed at one of many personal computers coupled to LAN **136**. Workstations **138**, **140**, and **142** are illustrated as being associated with separate functions only to facilitate an understanding of the different types of functions that can be performed by individuals having access to LAN **136**.

Server system **112** is configured to be communicatively coupled to various individuals, including employees **144** and to third parties, e.g., account holders, customers, auditors, developers, cardholders (i.e., consumers), merchants, acquirers, issuers, etc., **146** using an ISP Internet connection

148. The communication in the exemplary embodiment is illustrated as being performed using the Internet, however, any other wide area network (WAN) type communication can be utilized in other embodiments, i.e., the systems and processes are not limited to being practiced using the Internet. In addition, and rather than WAN **150**, local area network **136** could be used in place of WAN **150**.

In the exemplary embodiment, any authorized individual having a workstation **154** can access system **122**. At least one of the client systems includes a manager workstation **156** located at a remote location. Workstations **154** and **156** are personal computers having a web browser. Also, workstations **154** and **156** are configured to communicate with server system **112**. Furthermore, fax server **128** communicates with remotely located client systems, including a client system **156** using a telephone link. Fax server **128** is configured to communicate with other client systems **138**, **140**, and **142** as well.

FIG. **4** illustrates an exemplary configuration of a user system **202** operated by a user **201**, such as cardholder **22** (shown in FIG. **1**). User system **202** may include, but is not limited to, client systems **114**, **138**, **140**, and **142**, POS terminal **118**, workstation **154**, and manager workstation **156**. In the exemplary embodiment, user system **202** includes a processor **205** for executing instructions. In some embodiments, executable instructions are stored in a memory area **210**. Processor **205** may include one or more processing units, for example, a multi-core configuration. Memory area **210** is any device allowing information such as executable instructions and/or written works to be stored and retrieved. Memory area **210** may include one or more computer readable media.

User system **202** also includes at least one media output component **215** for presenting information to user **201**. Media output component **215** is any component capable of conveying information to user **201**. In some embodiments, media output component **215** includes an output adapter such as a video adapter and/or an audio adapter. An output adapter is operatively coupled to processor **205** and operatively couplable to an output device such as a display device, a liquid crystal display (LCD), organic light emitting diode (OLED) display, or "electronic ink" display, or an audio output device, a speaker or headphones.

In some embodiments, user system **202** includes an input device **220** for receiving input from user **201**. Input device **220** may include, for example, a keyboard, a pointing device, a mouse, a stylus, a touch sensitive panel, a touch pad, a touch screen, a gyroscope, an accelerometer, a position detector, or an audio input device. A single component such as a touch screen may function as both an output device of media output component **215** and input device **220**. User system **202** may also include a communication interface **225**, which is communicatively couplable to a remote device such as server system **112**. Communication interface **225** may include, for example, a wired or wireless network adapter or a wireless data transceiver for use with a mobile phone network, Global System for Mobile communications (GSM), 3G, or other mobile data network or Worldwide Interoperability for Microwave Access (WIMAX).

Stored in memory area **210** are, for example, computer readable instructions for providing a user interface to user **201** via media output component **215** and, optionally, receiving and processing input from input device **220**. A user interface may include, among other possibilities, a web browser and client application. Web browsers enable users, such as user **201**, to display and interact with media and other information typically embedded on a web page or a

website from server system **112**. A client application allows user **201** to interact with a server application from server system **112**.

FIG. **5** illustrates an exemplary configuration of a server system **301** such as server system **112** (shown in FIGS. **2** and **3**). Server system **301** may include, but is not limited to, database server **116**, transaction server **124**, web server **126**, fax server **128**, directory server **130**, and mail server **132**.

Server system **301** includes a processor **305** for executing instructions. Instructions may be stored in a memory area **310**, for example. Processor **305** may include one or more processing units (e.g., in a multi-core configuration) for executing instructions. The instructions may be executed within a variety of different operating systems on the server system **301**, such as UNIX, LINUX, Microsoft Windows®, etc. It should also be appreciated that upon initiation of a computer-based method, various instructions may be executed during initialization. Some operations may be required in order to perform one or more processes described herein, while other operations may be more general and/or specific to a particular programming language (e.g., C, C#, C++, Java, or other suitable programming languages, etc.).

Processor **305** is operatively coupled to a communication interface **315** such that server system **301** is capable of communicating with a remote device such as a user system or another server system **301**. For example, communication interface **315** may receive requests from user system **114** via the Internet, as illustrated in FIGS. **2** and **3**.

Processor **305** may also be operatively coupled to a storage device **134**. Storage device **134** is any computer-operated hardware suitable for storing and/or retrieving data. In some embodiments, storage device **134** is integrated in server system **301**. For example, server system **301** may include one or more hard disk drives as storage device **134**. In other embodiments, storage device **134** is external to server system **301** and may be accessed by a plurality of server systems **301**. For example, storage device **134** may include multiple storage units such as hard disks or solid state disks in a redundant array of inexpensive disks (RAID) configuration. Storage device **134** may include a storage area network (SAN) and/or a network attached storage (NAS) system.

In some embodiments, processor **305** is operatively coupled to storage device **134** via a storage interface **320**. Storage interface **320** is any component capable of providing processor **305** with access to storage device **134**. Storage interface **320** may include, for example, an Advanced Technology Attachment (ATA) adapter, a Serial ATA (SATA) adapter, a Small Computer System Interface (SCSI) adapter, a RAID controller, a SAN adapter, a network adapter, and/or any component providing processor **305** with access to storage device **134**.

Memory area **310** may include, but are not limited to, random access memory (RAM) such as dynamic RAM (DRAM) or static RAM (SRAM), read-only memory (ROM), erasable programmable read-only memory (EPROM), electrically erasable programmable read-only memory (EEPROM), and non-volatile RAM (NVRAM). The above memory types are exemplary only, and are thus not limiting as to the types of memory usable for storage of a computer program.

FIG. **6** is an example payment network environment **600** including savings management system **122** (shown in FIG. **3**) in which a cardholder **602** is prompted and elects to make savings contributions during payment card transactions. Cardholder **602** may, for example, be purchasing items or

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services at a merchant **610** location, or may be interacting online with merchant **610** to perform a transaction with a payment card, such as a credit card. In the example embodiment, cardholder **602** and merchant **610** are engaged at a point-of-sale (POS) device **118** (shown in FIG. **2**) to perform the transaction. During the transaction, merchant **610** and/or cardholder **602** inputs a purchase amount **614** into the point-of-sale device **118**. The purchase amount represents the amount merchant **610** is charging for the goods or services that cardholder **602** is purchasing as a part of the transaction.

Additionally, in the example embodiment, point-of-sale device **118** prompts cardholder **602** for a savings amount **616** that cardholder **602** would like to save. Savings amounts **616**, in some embodiments, represents a non-binding commitment by the cardholder to send that amount to an issuing bank, such as issuer **650**, as a part of their normal credit card billing cycle, and for purposes of saving that amount. In other embodiments, cardholder **602** may have configured a predefined amount, or a pre-defined percentage of the purchase price, to include as a savings amount **616** in all transactions, or in some subset of transactions such as all transactions over a certain dollar value. As such, cardholder **602** may have agreed to participate in the savings program prior to the transaction, and savings amount **616** may be computed or otherwise determined during or after the transaction.

In the example embodiment, cardholder **602** may enter $0, or otherwise decline participation for savings during the transaction. Alternatively, cardholder **602** may enter a (non-zero) savings amount **616**, representing a wish to participate in saving as a part of the savings program. Both purchase amount **614** and savings amount **616** become a part of a transaction **612** that is transmitted to a payment network **630** as a part of a payment authentication process. In the example embodiment, network **630** includes an acquirer interface processor and an issuer interface processor (not separately shown in FIG. **6**) that facilitates transactions from the merchant POS device **118** (generally, merchant **24** (shown in FIG. **1**)) to the merchant bank **26** (shown in FIG. **1**), network **28** (shown in FIG. **1**), and through to issuer **30** (shown in FIG. **1**, and similar to issuer **650**). Transaction **612** (i.e., transaction data **618**) is transmitted from merchant **610** to the acquirer processor.

In the example embodiment, interchange network **630** (sometimes referred to as payment network) operates a savings management system such as savings management system **122**. Savings management system **122** receives transaction **612** (i.e., including transaction data **618**) from merchant **610** and separately identifies savings amount **616** from purchase amount **614**. Savings amount **616** is defined as a unique item and includes a six-digit standard industry classification (SIC) code of "609999-VS" (where the "VS" stands for voluntary savings).

Savings management system **122** tracks and processes cardholder purchases **634** (i.e., purchase amounts **614**) as is known in the art (e.g., authenticates the purchase amount **614**, as described above in reference to FIG. **1**). Additionally, in one embodiment, savings management system **122** separately identifies savings amount **616** as an item not requiring payment authorization and passes savings amount **616** on to issuer **650** for accrual on behalf of cardholder **602**. In the example embodiment, as savings management system **122** receives savings amounts **616** with their payment card transactions, savings management system **122** accrues savings amounts **632** for each cardholder **602**. Savings management system **122** tracks savings amounts **632** separately,

and provides the necessary information to, for example, issuer **650** (i.e., the issuing bank for cardholder's **302** payment card). In other words, savings management system **122** provides both purchase amounts **634** and savings amounts **632** to issuer **650** during its course of business, with purchase amounts **634** going through the normal authentication process, and with savings amounts **632** accruing on behalf of cardholder **602** without traditional authentication and clearance components.

Issuer **650** receives the cardholder's **602** purchase amounts **634** and savings amounts **632** (collectively referred to herein as transaction data) from network **630**. In some embodiments, savings management system **122** may transmit transaction data (including savings amount **616**) to issuer **650** during a request for authorization of transaction **612**, and issuer **650** may accrue savings amounts **632**. In the example embodiment, savings management system **122** accrues a plurality of savings amounts **632** for cardholder **602** and transmits savings amounts **632** to issuer **650** at a later time, such as during a normal billing cycle routine. In other embodiments, issuer **650** receives savings amount **616** individually from savings management system **122** and accrues the amount in a database for later billing to consumer (i.e., issuer **650** accrues savings amounts **632**).

Subsequently, issuer **650** compiles and transmits a bill **652** to cardholder **602**, such as during a monthly billing cycle. Bill **652** may include, for example, an itemized list of purchases amounts **634** and other identifying data associated with each purchase. In addition, in the example embodiment, bill **652** includes an itemized list of savings amounts **632** identifying savings amount **616** and other identifying data associated with transaction **612**. In some embodiments, savings amounts **632** may be presented as an aggregated total. In other embodiments, the aggregated total may include both savings amounts **632** (i.e., savings amounts from the most recent pay cycle) as well as any previously presented savings amounts that have not yet been paid (i.e., carry-over savings amounts from prior pay cycles). As used herein, the terms "savings amount due" and "purchase amount due" is used to refer to the total of savings amounts and the total purchase amounts, respectively, that is presented to cardholder **602** on bill **652**. In other words, savings amounts and purchase amounts may be tracked and addressed separately such that payments made by cardholder **602** to issuer **650** may apply to either savings amounts due, purchase amounts due, or both.

Cardholder **602** receives bill **652** and remits a payment **652** to issuer **650**. As used herein, the term "payment amount" is used to refer to the amount of the payment remitted from cardholder **602** to issuer **650**. In the example embodiment, the payment amount is a single amount (i.e., not separated or separately distinguished by cardholder **602** as to how the payment amount is to be applied to the purchase or savings amount due). In other embodiments, cardholder **602** may specify how much of the payment amount is to be applied to the purchase amount due, how much is to be applied to the savings amount due, or both. In the example embodiment, the payment amount is applied first to any outstanding balance due for purchases (i.e., to purchase amount due), and only any excess is applied to the savings amount due. As used herein, the terms "purchase portion" and "deposit portion" are used to refer to the portion of the payment amount that is applied to the purchase amount due and to the deposit amount due, respectively.

In the example embodiment, cardholder **602** has a savings account **660** (also referred to herein as a deposit account)

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established with issuer **650**. Further, cardholder's **602** payment card is also associated with savings account **660** such that any savings amounts **616** entered with cardholder's **602** transactions **612** and subsequently paid by cardholder **602** (i.e., in the form of deposit portions paid on deposit amounts due) will flow into savings account **660**. In other words, savings account **660** is tied to the payment card in order to receive and accumulate the cardholder deposits. In some embodiments, issuer **650**, network **630**, and/or cardholder **602** may establish savings account **660** prior to enabling savings amounts **632** to accrue and be billed to cardholder **602**. For example, interchange network **20** may not allow entry of deposit amounts (e.g., may not prompt cardholder **602** for a savings amount) during transactions if network **20** determines that no savings account **660** has yet been configured and associated with cardholder's **602** payment card. In the example embodiment, one or more of merchant bank **26** (shown in FIG. **1**), network **630** (i.e., savings management system **122**), and/or issuer **650** may perform an account creation operation to create savings account **660** with issuer **650** on behalf of cardholder **602** if cardholder's **602** payment card is not yet associated with a savings account **660**. In some embodiments, such an operation may occur at approximately the time of a first receipt of a transaction **612** that includes a savings amount **616**. In other embodiments, one or more of merchant bank **26**, network **630**, and issuer **650** may initiate account creation at a later date, such as prior to the billing cycle to the cardholder, or at the time that a payment amount is received whose bill included a non-zero savings amount due, or at the time that a payment amount is received that includes a non-zero deposit portion.

During operation, for example, cardholder **602** has a payment card issued by issuer **650**, but has not yet associated the payment card with a savings account **660** (i.e., savings account **660** does not yet exist, or exists but is not yet directly linked to the payment card). Cardholder **602** enters into transaction **612** with merchant **610** using the cardholder's **602** payment card at merchant's **610** point-of-sale device **118**. In this example, the present transaction includes goods totaling $50 (i.e., a purchase amount **614** of $50), but the transaction could be for any dollar amount in other instances. As a part of the transaction process, cardholder **602** is prompted for a savings amount **616**, and cardholder **602** elects to save $10 (i.e., a savings amount **616** of $10).

During authentication of a typical payment card transaction, transaction **612** would be submitted from merchant **610** to a merchant bank, such as merchant bank **26**, through an interchange network such as network **630**, and down to an issuer **650** as described above in reference to FIG. **1**. The transaction may only include a purchase amount, such as purchase amount **614**, for purposes of authenticating the purchase with the issuer of the cardholder's payment card. In the example embodiment, transaction **612** includes the purchase amount **614** (i.e., $50) with its own SIC code, as well as the savings amount **616** (i.e., $10) with its own code (e.g., 609999-VS). Purchase amount **614** of $50 is processed as traditionally performed by the payment network (i.e., authenticated with the issuer, who may either approve or reject the $50 payment amount).

In the example embodiment, savings management system **122** maintains a database that includes list of cardholder's **620** payment card numbers (PAN's) and their associated savings account numbers (i.e., identifiers indicating cardholder savings account **660** for each cardholder **602**). If cardholder's **620** PAN already has an associated savings account **660**, savings management system **122** identifies the savings account number **660** to associate with savings amount **616**. In some situations, cardholder's **602** payment card may not yet be associated with a savings account (i.e., there is no savings account yet identified for cardholder **602**). In the example embodiment, issuer **650** defines a pool of account numbers for use by network **630**. In some embodiments, issuer **650** defines an account format template (i.e., an account number format identifying the structure properly-complying account numbers), and optionally a range of account numbers. Savings management system **122** assigns a savings account number to associate with the cardholder's **602** payment card. As such, savings management system **122** identifies the savings account number **660** to associate with savings amount **616**.

In other embodiments, savings management system **122** sends an account creation request to issuer to open a savings account on behalf of cardholder **602**, and additionally to link this new savings account with cardholder's **602** payment card for purposes of enabling receipt of voluntary savings amounts as described herein. Issuer **650** receives the request from network **630**, creates a savings account **660** in the name of cardholder **602**, and associates savings account **660** with cardholder's **602** payment card (i.e., the credit card being used during transaction **612**). Accordingly, savings account **660** is then prepared to receive savings amounts once cardholder **602** pays. In some embodiments, network **630** provides the savings account number to issuer **650**, who establishes savings account **660**. In other embodiments, issuer **650** generates the savings account number, establishes savings account **660**, and then transmits the savings account number to network **630** for association with cardholder's **602** PAN.

In the example embodiment, network **630** transmits savings amount **616** to issuer **650** along with the associated savings account number of savings account **660**. In other embodiments, network **630** transmits savings amount **616** to issuer **650**, and issuer **650** determines cardholder savings account **660** based on cardholder's **602** PAN.

Further, in the present example, the transaction **612** is the only transaction conducted by cardholder **602** using the payment card during the present pay cycle. In other words, purchase amounts **634** include only the one $50 purchase amount, and savings amounts **632** include only the one $10 savings amount. At the end of the current pay cycle, issuer **650** receives purchase amounts **634** and savings amounts **632** (i.e., $50 to merchant **610** and $10 to savings, respectively) from network **630**. Issuer prepares and mails cardholder's **602** monthly bill **652**. Bill **652** includes a total amount due of $60, broken down and summarized as $50 total for purchases (i.e., purchase amount due) and $10 for savings (i.e., savings amount due). Additionally, bill **652** also includes an itemization of purchase amount **614** and savings amount **616**.

Cardholder **602** receives bill **652** and remits a payment to issuer for $60 (i.e., payment amount of $60). In this example, the cardholder **602** did not distinguish how the payment should be applied (e.g., sent in a check for $60 without any other markings on the bill). Issuer **650** may thus have a default policy to apply unspecified payments first to any outstanding payment amounts due, and then any remainder amounts to any savings amounts due. As such, when issuer **650** receives the remittance of $60, issuer applies $50 of the payment amount to the $50 payment amount due (i.e., of the $60 payment amount, $50 becomes the purchase portion). Further, the remainder of the payment amount, $10, is then applied to savings amount due (i.e., of the $60 payment amount, $10 becomes the deposit portion). Issuer

identifies that cardholder's **602** payment card is associated with savings account **660**, and accordingly applies the deposit portion of $10 to savings account **660**. As such, cardholder **602** has voluntarily elected to save $10 during a payment card transaction, and made good on his own commitment by sending in the $10 for his own savings during the normal payment of his monthly bill.

In other instances, the issuer **650** may prompt the cardholder **602** to confirm that the remaining amount (e.g., the $10) should be applied to the savings account **660**. For example, the prompt may be communicated to the customer electronically, such as by short message service (SMS), an interactive voice response (VR) system, a confirmation email, or the like. If the cardholder **602** denies deposit of the remainder to the savings account **660**, then issuer **650** credits the remainder to the cardholder's **602** payment card account (i.e., as a balance credit, or as further payment toward an outstanding balance), or issuer **650** issues cardholder **602** a refund. If the cardholder accepts deposit of the remainder to the savings account **660**, then issuer **650** deposits the remainder (e.g., the $10) into savings account **660**.

While some of the example embodiments describe systems and methods of consumer savings during credit card transactions, it should be understood that these systems and methods may be applicable to other types of payment card transactions.

Further, the savings transactions as described herein are sometimes referred to as "commitments" or amounts "due." However, it should be understood that, in some embodiments, no payment obligation necessarily arises based on, for example, cardholder **602** entering savings amount **616** as a part of a transaction. In some embodiments, any unpaid savings amounts due may be eliminated. In other words, "savings amounts" may be thought of and treated as a non-obligatory cardholder's promise to themselves, and not like the obligation to pay that arises when a cardholder purchases goods or services from a merchant. As such, "unpaid savings amounts due" merely represent a cardholder's unfulfilled promise to themselves to save.

In some embodiments, savings account **660** may not be a savings account hosted by issuer **650**. As such, the deposit portion may be transmitted from issuer **650** to the bank hosting cardholder's savings account **660** for deposit on behalf of cardholder **602**.

FIG. 7 is an example method **700** for managing consumer savings during payment card transactions in an interchange environment **600** such as shown in FIG. **6**. In the example embodiment, method **700** is performed by a computing system such as server **112** (shown in FIG. **2**), savings management system **122** (shown in FIGS. **3** and **6**), or by computing device **810** (shown in FIG. **8**). In the example embodiment, method **700** includes receiving **710**, by a computer device (e.g., savings management system **122**), a payment card transaction such as transaction **612**. The payment card transaction separately identifies a payment amount and a savings amount, such as payment amount **614** and savings amount **616**. The savings amount is an amount the cardholder associated with the payment card transaction desires to save. In some embodiments, receiving transaction data associated with the payment card transaction further includes receiving a savings amount selected by the cardholder, such as cardholder **602** (shown in FIG. **6**), at a point-of-sale device, such as POS device **118** (shown in FIG. **2**). In other embodiments, the computing system is in communication with an interchange network, such as network **630** (shown in FIG. **6**), and the payment card transaction is received from a merchant bank. The payment card

transaction further includes a first code associated with and identifying the payment amount **614**, and a distinct (i.e., separate) code associated with the savings amount **616** and indicating that the savings amount is for savings and is not a purchase amount.

In the example embodiment, method **700** includes identifying **750**, by the computer device, a savings account number (generally shown as savings account **660**) associated with the cardholder, and transmitting **770** the savings amount **616** and the savings account number **660** to the issuing bank **650**. The issuing bank is the issuer of the payment card, and the savings amount is for saving on behalf of the cardholder using the savings account number. The savings account number identifies a savings account associated with the cardholder and/or the cardholder's payment card.

In some embodiments, method **700** includes determining **720** that the payment card does not have an associated savings account, and transmitting **730** an account creation request to the issuing bank on behalf of the cardholder, the account creation request results in the creation of the associated savings account at the issuing bank for receipt of the savings amount. The issuing bank may send the account number **660** back to the network for association with the present payment card transaction and/or future transactions. In other embodiments, method **700** includes determining **720** that the payment card does not have an associated savings account, and generating **740** the savings account number **660** by one of selecting an account number from a pre-defined pool of account numbers and computing an account number using a pre-defined format. The generated savings account number **660** is then associated with one or more of the payment card, the payment card transaction, and the cardholder.

In some embodiments, method **700** includes receiving **710** the payment card transaction from a source device that includes one of a point of interaction computing device and a merchant bank computing device. The source device prompts the cardholder to identify the savings amount. In other embodiments, method **700** includes accruing **750**, in the memory, the savings amount on behalf of the cardholder. Method **700** may also include generating a total savings amount from a plurality of savings amounts, and transmitting the total savings amount to the issuing bank.

FIG. **8** shows an example configuration **800** of a database **820** within a computing device **810**, along with other related computing components, that may be used to manage consumer savings during payment card transactions. In some embodiments, computing device **810** is similar to server system **112** (shown in FIG. **2**), savings management system **122** (shown in FIGS. **3** and **6**), and/or server system **301** (shown in FIG. **5**). Database **820** is coupled to several separate components within computing device **810**, which perform specific tasks.

In the exemplary embodiment, database **820** includes savings data **822**, purchase data **824**, and accrual data **826**. In some embodiments, database **820** is similar to database **120** (shown in FIG. **2**). Savings data **922** includes information associated with savings amounts, such as described in reference to FIG. **6**. Purchase data **924** includes information associated with purchase amounts, such as described in reference to FIG. **6**. Accrual data **926** includes data associated with accrual of savings amounts such as discussed in reference to FIG. **6**.

Computing device **810** includes the database **820**, as well as data storage devices **830**. Computing device **810** also includes a transaction component **840** for interacting with

merchants and/or merchant banks as a part of the transaction process, as described in reference to FIGS. **1** and **6**. Computing device **810** also includes an savings component **850** for identifying savings amounts (i.e., savings data **822**) and managing accrual data **826**. An account creation component **860** is also included for processing account creation requests with, for example, issuer banks. A communications component **870** is also included for communicating with merchants, merchant banks, point-of-sale devices, and/or issuing banks. A processing component **880** assists with execution of computer-executable instructions associated with the tokenization system.

As will be appreciated based on the foregoing specification, the above-described embodiments of the disclosure may be implemented using computer programming or engineering techniques including computer software, firmware, hardware or any combination or subset thereof, wherein the technical effect is a flexible system for managing consumer savings during payment card transactions. Any such resulting program, having computer-readable code means, may be embodied or provided within one or more computer-readable media, thereby making a computer program product, i.e., an article of manufacture, according to the discussed embodiments of the disclosure. The computer-readable media may be, for example, but is not limited to, a fixed (hard) drive, diskette, optical disk, magnetic tape, semiconductor memory such as read-only memory (ROM), and/or any transmitting/receiving medium such as the Internet or other communication network or link. The article of manufacture containing the computer code may be made and/or used by executing the code directly from one medium, by copying the code from one medium to another medium, or by transmitting the code over a network.

These computer programs (also known as programs, software, software applications, "apps", or code) include machine instructions for a programmable processor, and can be implemented in a high-level procedural and/or object-oriented programming language, and/or in assembly/machine language. As used herein, the terms "machine-readable medium" "computer-readable medium" refers to any computer program product, apparatus and/or device (e.g., magnetic discs, optical disks, memory, Programmable Logic Devices (PLDs)) used to provide machine instructions and/or data to a programmable processor, including a machine-readable medium that receives machine instructions as a machine-readable signal. The "machine-readable medium" and "computer-readable medium," however, do not include transitory signals. The term "machine-readable signal" refers to any signal used to provide machine instructions and/or data to a programmable processor.

This written description uses examples to disclose the disclosure, including the best mode, and also to enable any person skilled in the art to practice the disclosure, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the disclosure is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they have structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims.

What is claimed is:

1. A computer-implemented method for managing consumer savings initiated from a payment card transaction for a purchase made by a cardholder at a merchant point of sale (POS) device using a payment card associated with a payment card account, the method using a savings management computer device in communication with an issuing bank, the savings management computer device in communication with a memory device, said method comprising:

receiving, by the savings management computer device from a payment processing network, a transaction data message associated with the payment card transaction initiated by the cardholder at the POS device, the transaction data message generated by the POS device and including a transaction amount, a purchase amount having a corresponding purchase code, and a savings amount having a corresponding savings code, the transaction amount equaling the purchase amount and the savings amount;

identifying, by the savings management computer device, the savings amount from the transaction data message generated by the POS device, the savings amount being entered by the cardholder at the POS device;

querying the memory device, by the savings management computer device, for a savings account number associated with the cardholder using the transaction data message;

determining, by the savings management computer device, that a savings account is not associated with the payment card account;

electronically generating, by the savings management computer device, a savings account number by one of (i) selecting an account number from a predefined pool of account numbers and (ii) generating an account number using a predefined format;

generating an account creation request message by the savings management computer device, the account creation request message including the generated savings account number, the account creation request message configured to cause the issuing bank computing device to create a savings account at the issuing bank with the savings account number assigned thereto; and

transmitting the account creation request message and the savings amount to the issuing bank for creating the savings account and recording as a savings accrual for the cardholder the savings amount within the savings account, wherein the issuing bank is the issuer of the payment card.

2. The method of claim **1**, wherein receiving the transaction data message further comprises receiving the transaction data message from a source device that includes at least one of a point of interaction computing device and a merchant bank computing device, wherein the source device prompts the cardholder to input the savings amount.

3. The method of claim **1** further comprising:

recording, in the memory device, the savings amount as a savings accrual for the cardholder;

generating a total savings amount from a plurality of savings amounts; and

transmitting the total savings amount to the issuing bank.

4. The method of claim **1**, wherein receiving the transaction data message further comprises receiving the transaction data message from a merchant bank, wherein the transaction data message further includes a first code associated with the purchase amount and a second code associated with the savings amount, wherein the first code is different than the second code.

5. The method of claim **1** further comprising:

determining that the payment card does not have an associated savings account at the issuing bank; and

transmitting an account creation request to the issuing bank on behalf of the cardholder, the account creation request results in the creation of the associated savings account at the issuing bank.

6. The method of claim **1**, further comprising:

computing, by the savings management computer device, a savings amount in excess of the purchase amount using at least one of (i) a predefined savings amount configured by the cardholder, (ii) a predefined percentage of the purchase amount configured by the cardholder, wherein the payment processing network includes at least a payment processor and the point of sale (POS) device, wherein receiving the transaction data message associated with the payment card transaction further comprises determining that the cardholder has inputted the savings amount at the POS device at the time of the payment card transaction in lieu of applying the predefined savings amount or the predefined percentage of the savings amount, and (iii) a one-time savings amount entered at the POS device by the cardholder.

7. The method of claim **1**, further comprising:

causing the savings amount to bypass payment authorization processing; and

transmitting the savings amount to the issuing bank for accrual on behalf of the cardholder.

8. A savings management computer device for managing consumer savings initiated from a payment card transaction for a purchase made by a cardholder at a merchant point of sale (POS) device using a payment card associated with a payment card account, said savings management computer device comprising a processor communicatively coupled to a memory device, said savings management computer device in communication with an issuing bank, said savings management computer device programmed to:

receive, from a payment processing network, a transaction data message associated with the payment card transaction initiated by the cardholder at the POS device, the transaction data message including a transaction amount generated by the POS device and including a transaction amount, a purchase amount having a corresponding purchase code, and a savings amount having a corresponding savings code, the transaction amount equaling the purchase amount and the savings amount;

identify the savings amount from the transaction data message generated by the POS device, the savings amount being entered by the cardholder at the POS device;

query the memory device for a savings account number associated with the cardholder using the transaction data message;

determine that a savings account is not associated with the payment card account;

electronically generate a savings account number by one of (i) selecting an account number from a predefined pool of account numbers and (ii) generating an account number using a predefined format;

generate an account creation request message by the savings management computer device, the account creation request message including the generated savings account number, the account creation request message configured to cause the issuing bank computing device to create a savings account at the issuing bank with the savings account number assigned thereto; and

transmit the account creation request message and the savings amount to the issuing bank for creating the savings account and recording as a savings accrual for the cardholder the savings amount within the savings account, wherein the issuing bank is the issuer of the payment card.

9. The computing device of claim **8**, wherein receiving the transaction data message further comprises receiving the transaction data message from a source device that includes at least one of a point of interaction computing device and a merchant bank computing device, wherein the source device prompts the cardholder to input the savings amount.

10. The computing device of claim **8**, wherein the computing device is further programmed to:

record, in the memory device, the savings amount as a savings accrual for the cardholder;

generate a total savings amount from a plurality of savings amounts; and

transmit the total savings amount to the issuing bank.

11. The computing device of claim **8**, wherein receiving the transaction data message further comprises receiving the transaction data message from a merchant bank, wherein the transaction data message further includes a first code associated with the purchase amount and a second code associated with the savings amount, wherein the first code is different than the second code.

12. The computing device of claim **8**, wherein the computing device is further programmed to:

determine that the payment card does not have an associated savings account at the issuing bank; and

transmit an account creation request to the issuing bank on behalf of the cardholder, the account creation request results in the creation of the associated savings account at the issuing bank.

13. The computing device of claim **8**, wherein the computing device is further programmed to compute a savings amount in excess of the purchase amount using at least one of (i) a predefined savings amount configured by the cardholder, (ii) a predefined percentage of the purchase amount configured by the cardholder, and wherein the payment processing network includes at least a payment processor and the point of sale (POS) device, wherein receiving the transaction data message associated with the payment card transaction further comprises determining that the cardholder has inputted the savings amount at the POS device at the time of the payment card transaction in lieu of applying the predefined savings amount or the predefined percentage of the savings amount, and (iii) a one-time savings amount entered at the POS device by the cardholder.

14. The computing device of claim **8**, wherein the computing device is further programmed to:

cause the savings amount to bypass payment authorization processing; and

transmit the savings amount to the issuing bank for accrual on behalf of the cardholder.

15. At least one non-transitory computer-readable storage media having computer-executable instructions embodied thereon, wherein when executed by at least one processor, the computer-executable instructions cause the processor to:

receive a transaction data message associated with the payment card transaction initiated by the cardholder at the POS device, the transaction data message including a transaction amount generated by the POS device and including a transaction amount, a purchase amount having a corresponding purchase code, and a savings

amount having a corresponding savings code, the transaction amount equaling the purchase amount and the savings amount;

identify the savings amount from the transaction data message generated by the POS device, the savings amount being entered by the cardholder at the POS device;

query the memory device for a savings account number associated with the cardholder using the transaction data message;

determine that a savings account is not associated with the payment card account;

electronically generate a savings account number by one of (i) selecting an account number from a predefined pool of account numbers and (ii) generating an account number using a predefined format;

generate an account creation request message by the savings management computer device, the account creation request message including the generated savings account number, the account creation request message configured to cause the issuing bank computing device to create a savings account at the issuing bank with the savings account number assigned thereto; and

transmit the account creation request message and the savings amount to the issuing bank for creating the savings account and recording as a savings accrual for the cardholder the savings amount within the savings account, wherein the issuing bank is the issuer of the payment card.

16. The computer-readable storage media of claim **15**, wherein receiving the transaction data message further comprises receiving the transaction data message from a source device that includes at least one of a point of interaction computing device and a merchant bank computing device, wherein the source device prompts the cardholder to input the savings amount.

17. The computer-readable storage media of claim **15**, wherein the computer-executable instructions further cause the processor to:

record, in the memory device, the savings amount as a savings accrual for the cardholder;

generate a total savings amount from a plurality of savings amounts; and

transmit the total savings amount to the issuing bank.

18. The computer-readable storage media of claim **15**, wherein receiving the transaction data message further comprises receiving the transaction data message from a merchant bank, wherein the transaction data message further includes a first code associated with the purchase amount and a second code associated with the savings amount, wherein the first code is different than the second code.

19. The computer-readable storage media of claim **15**, wherein the computer-executable instructions further cause the processor to:

determine that the payment card does not have an associated savings account at the issuing bank; and

transmit an account creation request to the issuing bank on behalf of the cardholder, the account creation request results in the creation of the associated savings account at the issuing bank.

20. The computer-readable storage media of claim **15**, wherein the computer-executable instructions further cause the processor to compute a savings amount in excess of the purchase amount using at least one of (i) a predefined savings amount configured by the cardholder, (ii) a predefined percentage of the purchase amount configured by the cardholder, and wherein the payment processing network includes at least a payment processor and the point of sale (POS) device, wherein receiving the transaction data message associated with the payment card transaction further comprises determining that the cardholder has inputted the savings amount at the POS device at the time of the payment card transaction in lieu of applying the predefined savings amount or the predefined percentage of the savings amount, and (iii) a one-time savings amount entered at the POS device by the cardholder.

21. The computer-readable storage media of claim **15**, wherein the computer-executable instructions further cause the processor to:

cause the savings amount to bypass payment authorization processing; and

transmit the savings amount to the issuing bank for accrual on behalf of the cardholder.

*   *   *   *   *